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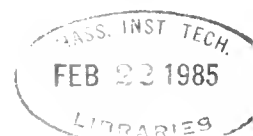






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Misinterpreting Hospital Performance  
With Financial Statement Analysis

by

H. David Sherman

WP 1614-84

August 1984



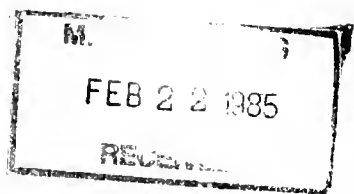
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## Abstract

Rising hospital costs are of increasing concern to government and industry. The growth and financial success of for profit hospitals (FPs) in an industry that was solely populated by non-profit hospitals (NPS) has raised questions about whether FP business practices are an effective way to contain health costs. Studies using accounting and other operating data are found to provide conflicting and ambiguous conclusions that do not support the strong views voiced about relative performance of FPs vs. NPS.

A comparison of FP and NP financial statements prepared in accordance with current disclosure requirements suggests that

- a. These statements can be misleading or, at best, of little help in assessing the financial performance and cost structure of FPs vs. NPs.
- b. The use of fund accounting in NPs versus corporate accounting principles in FPs contributes to the difficulty of comparing these organizations performance, but that this is not the key problem in analyzing these financial statements, and
- c. Additional disclosures about output and volume mix and about the financial impact of differences in legal status along with the added disclosure about the impact of fund accounting are needed to make the hospital financial statements relevant and useful in understanding and containing health care costs through both public and private initiatives.



## INTRODUCTION

Rapid growth in U.S. health care costs are a serious concern to government and industry. Analysis of financial accounting data from non-profit and for profit hospitals have confused or, at best, have contributed nothing to an understanding of relative hospital performance, the nature of hospital cost increases and ways to contain these costs. A closer look at hospital financial statement disclosures clarifies why their value is minimal. Revised disclosure requirements identified in this study can, however, make hospital financial accounting a key ingredient to understand the cause of cost increases and developing ways to contain hospital costs.

The U.S. hospital industry was originally comprised of non-profit hospitals (NPs). Since 1950, there has been an increasing presence of for profit (investor owned) hospitals. While for profit hospitals (FPs) comprise only about 10% of all U.S. hospitals, the number of FP beds grew 64% over the decade ending 1980 versus 17% growth for NPs, and FPs account for over 20% of the hospitals in the sun belt regions of the U.S. [American Hospital Association]. Many FPs have been highly recommended equity investments due to their favorable growth and profitability performance. The rising cost of hospital services for FPs and NPs alike has been a serious concern and has resulted in diverse efforts to regulate and manage costs of health care. Concerns about hospital costs and the favorable financial performance of the FPs has naturally raised questions such as:

- (1) does the profit motive results in a more efficient and better managed hospital?
- (2) will further growth in FPs result in higher or lower health care costs?
- (3) will the profit motive result in providing lower quality health care because the primary objective is profit rather than service? (See, for example, Boston Globe and [Altman].)



Answers to these questions can have significant public policy impact because of 1) the U.S. commitment to maintain access to care regardless of ability to pay resulting in large government health care subsidies and 2) the tax subsidies provided to NPs which need to be reevaluated to determine whether legislative incentives should be shifted away from NPs to FPs as a means of reducing health care costs.

Managing health care costs is also of increasing interest to corporations whose management are becoming appalled at the growth in the cost of health insurance fringe benefits. Chrysler Corporation reported that their 1983 health insurance costs were \$6,000/yr. per employee which was double the 1979 cost [Rosenbaum]. Finally, these questions have important implications for the management of hospitals, e.g., if FPs are less costly, can NPs adopt the FP management techniques and reduce their costs without sacrificing quality of care? (The strong and emotional polarity of views on the merits of FPs vs. NPs are further evidenced in [Dorfman], [Goldsmith], [Keenan], [Kinkhead], [Siafaca], [Starr], and [White].)

Accounting has an important role in resolving the heated debates about whether FPs are more or less costly than NPs. There is a need to measure cost and revenues in a way that is reliable and consistent to meaningfully compare FPs and NPs. Most hospital cost studies utilize accounting data that are reported in financial statements in addition to other non-financial operating data. Yet, there is reason to question whether these accounting data can be and are used in a manner which provides accurate answers to the questions posed above.

FPs and NPs financial disclosure requirements and accounting methods differ. FPs must meet corporate accounting standards and in many cases SEC disclosure requirements as well. In contrast, NPs are guided by fund accounting disclosure requirements for hospitals, and in many cases, municipal



accounting requirements apply for government owned NPs. (See for example [AICPA, 1972, 1974, and 1980].) Do the inconsistent disclosure requirements and accounting methods used by FP and NP institutions affect the ability to evaluate the relative performance of these organizations? Are additional, or more consistent, disclosure requirements needed to help assess the impact of the increased presence of FPs on health care costs? Accountants have voiced opposing views about the differences in for profit and non-profit reporting and accounting standards. Some argue that these differences are justified and meaningful [Herzlinger and Sherman] while others feel they are just confusing and that one set of standards should apply to both types of organizations [Anthony, 1980]. Comparisons of NP and FP hospitals to address public policy concerns can provide additional insight about the relative merits of fund accounting versus corporate accounting standards in providing financial statement disclosures that are meaningful and relevant.

This paper addresses the question of FP vs. NP performance in two ways. First, a review of the studies completed over the past decade indicates the extent to which the questions about performance have been resolved and the extent to which the accounting data have impaired the analysis of hospital performance. The second part examines whether financial statement analysis of a FP and NP hospital can help to resolve the question of which one is less costly, more efficient, and better managed.

A controlled environment was used so that the performance and data underlying the financial statements were available to assess the accuracy of conclusions based on financial statement analysis. One set of NP financial statements (F/S) are compared with a FP F/S. This FP F/S is actually the financial statement of the NP for the subsequent year adjusted with the help of hospital management to reflect that hospital's operation as if it were a FP.

This comparison leads to conclusions about the types of disclosures and





accounting policies that are needed to use financial statements of FPs and NPs to compare their relative performance. These conclusions suggest that NP fund accounting contributes to the problem of comparability, but that there are other more basic disclosures about outputs, payor mix, and costs that are needed to make FP and NP financial statements useful for evaluating performance.

## 1. LITERATURE SURVEY

Studies comparing FP and NP hospitals have generally focused on four dimensions of performance: quality, cost of operation, fees charged for services, and operating efficiency. Current knowledge reflected in studies published in the past ten years are summarized for each of these four areas. Exhibit 1 in the appendix is a chart that summarizes the results of studies addressed in this literature review.

As background for this literature review, the difference between NP and FP hospitals that can impact the financial and operating performance are summarized in Exhibit II in the appendix.

### Quality

While there is concern that quality of care may be sacrificed to enhance profits, studies of FPs vs. NPs indicate that there are no ascertainable quality differences. These studies have used several measures of quality including accreditation [Steinwald and Neuhauser], incidence of malpractice claims, possession of high prestige technology, existence of suspect practices [Clark], and death rates [Bays, 1977].<sup>1</sup> It has also been suggested that FPs' greater access to equity capital markets allows them to finance the purchase of state-of-the-art equipment which promotes quality by attracting physicians and increasing the types of care available [Frost and Sullivan], [Riffer]. FPs and NPs both need to maintain high quality levels to satisfy



physicians or risk losing patients, and there is no evidence that ownership type or corporate control can induce physicians to compromise quality [Harris, J.]. The dimensions of health care quality are broader than those tested in these studies (see for example, [Steinwald and Neuhauser], [Dumbaugh], and [Donabedian]). However, unless new definitions of quality are proposed which are more rigorous, comprehensive, measurable, and widely accepted than those noted above, there appears to be no basis for further examining this dimension beyond the results of existing studies. From the accounting perspective, this suggests that any cost differences found among FPs and NPs are not primarily due to quality differences.

#### Cost of Care - Cost Per Day vs. Cost Per Admission

Studies of FP vs. NP costs provide conflicting evidence about relative hospital costs. Several studies found that NPs had lower costs per day than FPs [Bays, 1979], [Clark], [Lewin et al.], [Pattison and Katz]. Another study finds FPs and NPs to have similar costs per day but that FP chains have lower cost per day than independent FP and NPs [Sloan and Vraciu]. The cost per admission is also considered in these and other studies which also yield conflicting results.<sup>2</sup> FPs cost per admission have been found to be below [Clark], approximately the same [Bays, 1979], [Sloan and Vraciu] and above NPs cost per admission [Pattison and Katz]. In addition, studies that have segregated chain from independent hospitals have found that FP chain costs per admission were lower than NPs ([Sloan and Vraciu] and [Bays, 1979]) while another study found the opposite [Coyne].<sup>3</sup> One source of conflicting conclusions is that these studies do not all examine the same hospitals during the same time period. However, this is not likely to be the source of all the conflicts.

Four basic problems are found in all of these cost studies which



contribute to the ambiguous and conflicting conclusions. First, they do not fully adjust for cost differences that arise due to the NPs cost advantages arising from its legal status. Specifically, they do not fully consider the lower interest rates paid on tax exempt debt, the exemption from income and property taxes, the availability of tax deductible donations for capital and operating expenditures, and the value of donated services provided to NPs. Second, the price level effects on depreciation and borrowing costs associated with the timing of capital asset purchases and lease contracts are not considered. A third problem is that there is no indication about whether NPs' expenses that are funded by restricted gifts and endowment income would have been incurred if these restricted funds were absent. This potentially overstates the true cost of operations for the NPs. Finally, the case mix is not explicitly considered. Hence, the output mix and relative costliness and amounts of resources needed to treat different types of illnesses is essentially ignored. In most studies, the number of services offered are used as a case mix surrogate and in only one study [Bays, 1979] is a case mix severity index developed to control for output mix. Correcting for the cost differences due to interest, tax subsidies and price level effects would have been difficult but possible with the cooperation of the hospitals. Case mix data has, however, been essentially unavailable and is only now becoming available in limited ways. Hence, the absence of case mix adjustments is understandable. Financial statement disclosures do not provide these data critical for assessing the relative cost of NPs and FPs, e.g., there is no disclosure of property taxes, case mix, price level effects or the operating impact of donated funds and services.



## Fees and Charges

Do FPs charge more for services regardless of whether the services are more costly. There appears to be evidence that FPs apply higher markups than NPs which would contribute to their attractive earnings record [Lewin et al.]. While this suggests that FPs would tend to have higher fees, this depends on their relative costs, i.e., if FPs have lower costs and higher markups, they may still have lower fees. FPs were found to have higher charges [Lewin et al.], [Pattison and Katz], but this is contradicted by Sloan and Vraciu who found the charges to be lower in chain FPs with no difference between independent FPs and NPs.

Further complicating the inconsistent findings of these studies, is the lack of adjustment for case mix and payor mix. The payor mix impacts charges, since various payors such as Medicare, Medicaid, and often Blue Cross pay hospitals for services at rates that are below their standard fee schedules. There is some evidence that FPs practice cream skimming, whereby they locate their hospitals to attract a patient case mix and payor mix that will maximize profits (see for example Bays [1977] and Lewin [1982]). This has been denied by some FPs (see for example Brown [1981]). These mix factors are not controlled for and, consequently, definitive answers about relative fees and the existence of cream skimming are unavailable. Financial statement disclosures are silent on the question of payor mix which seriously impairs their usefulness in comparing the margins of FPs vs. NPs.

## Operating Efficiency

Operating efficiency has been defined and measured in many different ways. It has been argued that NPs' operating efficiency is inferior to FPs because there is a lack of business discipline among non-profit managers





[Clark]. These views are supported by Frost and Sullivan who suggest that FP chains have "staffing controls highly responsive to demand as well as controls to help limit the length of stay." FPs have lower lengths of stay which may reflect greater efficiency, but may equally be due to case mix differences as discussed above. Kushman and Nuckton [1977] found FPs respond more quickly than NPs in adjusting their bed stock to the demand for care, which is another dimension of efficiency.

Supporting the view that FPs are more efficient are other studies that examined operating ratios as measures of efficiency. For example, Lewin [1982] found full-time equivalents of personnel per patient to be lower in FPs suggesting more efficient scheduling and job allocation. Lewin also found that FPs utilized lower fixed assets per patient day. Coyne [1982] found FPs have greater admissions per bed but that personnel utilizations are not significantly different among hospital types - FPs vs. NPs, and chains vs. independents.

These studies also lack specific case mix data. The non-financial data used are also not subject to audit and may have inaccuracies or inconsistencies that may bias any conclusions. Moreover, these operating efficiency studies that rely on both financial accounting and non-financial data provide little insight into the nature of operating differences that may exist and whether such differences are really due to the management practices in the NP vs. FP environment. One exception to this [Wilson and Jadow, 1982] focused on one area - Nuclear Medicine - and found the FPs to be more efficient in resource utilization than NPs for that one service. Sherman and Chilingerian [1983] circumvent the cost and case mix output data problems and examined the frequency of use of a set of "good management techniques" in FPs vs. NPs. They found that FPs made greater use of shared services, bidding procedures for purchasing, demand forecasting and other



basic business management techniques, but the manner in which health care services were provided did not appear to differ.

Throughout all of these studies, except for the quality dimension and the Sherman study, the need to use and rely heavily on accounting data as well as other data not included in the financial statements is pervasive. While the researchers in all of these studies have tried to correct for data inconsistencies and unavailability of data, the studies have generally not been completed by individuals that are primarily involved with accounting disciplines and the accounting and disclosure issues have not been a focus of their analysis. The result of all these studies is the lack of any firm conclusions about the relative costs, fees, and operating efficiencies of FPs vs. NPs. Consequently, the public debate about the relative merits of FPs vs. NPs and their impact on health care costs are primarily based on emotional and qualitative judgements. The next section addresses two questions: 1) can the relative performance of hospitals be more objectively understood through careful analysis of hospital financial statements? and 2) what disclosures are critical for performance evaluation and are these included in FP and NP financial statements?

### III Analyzing Hospital Financial Statement to Evaluate Performance

The purpose of this section is to investigate the types of conclusions about performance one can derive from analyzing NP vs. FP financial statements. Where the conclusions are found to be inadequate, the added data that would make the financial statements a useful tool for performance evaluation are identified.

The most straightforward approach of using a set of actual statements of FPs and NPs would be unlikely to provide the insights needed for the following reasons:



- (1) The output mix of patients and payors of the hospitals would not be readily available. While hospitals might cooperate and provide payor mix data, there are few hospitals in the U.S. that have complete and accurate patient mix data in an accessible form, since this was never required in the past. While these data were needed for Medicare reimbursement which applies only to patients over 65 years old since 1983, the hospitals are only now beginning to voluntarily develop this data on a hospital-wide basis.
- (2) Other types of data that are needed to confirm the accuracy of a hospital performance evaluation. This would require a great deal of cooperation and analysis on the part of each hospital. These problems are more fully documented in (Sherman [1984]).

Rather than use a set of FP and NP statements, a single NP hospital that has extensive analytic data about its operations agreed to cooperate in this study. The financial statements for two consecutive years, 1982 and 1983, were obtained. The 1982 audited financial statement will be used as the example of a NP. The 1983 audited financial statement recast to reflect the way it would appear if it were a FP is used as the sample FP.

The insights available from this limited study provide an extensive set of conclusions which extend to all hospital financial statements. While there may be yet other problems encountered in studying a large group of NP and FP hospital financial statements, these findings provide a strong set of initial hypotheses which can be further tested and expanded upon in future research.

The audited financial statements of a non profit teaching hospital for 1982 and 1983 were used for this study. The statement of revenues and expenses are reproduced and reorganized to accommodate this analysis in Appendix-Exhibit III. In addition, the 1982 statement was adjusted for specific price level changes to reflect the 1982 operations as they would have appeared with fee and cost level changes experienced from 1982 to 1983. The size of these price level changes for each revenue and expense category were provided by management based on internal documents reflecting fees and salary cost changes that were experienced. Construction cost



changes and other changes that could not be internally estimated were adjusted by the regional consumer price and construction cost indices. Each adjustment is documented in the numerical footnotes in Exhibit III (footnotes 1 through 4).

To compare FP vs. NP hospital operations, the 1983 financial statements of the NP were restated to reflect the likely impact of a change in legal status from a NP to a FP hospital. These changes include the addition of property and income tax, elimination of donated services and cash gifts, added revenues from Medicare reflecting higher reimbursement rates to provide FPs with a return on equity, and the higher interest rates that would result from the absence of tax exempt debt. These changes are described in Exhibit III in the alphabetic footnotes (footnotes a through g).

The results are four statement of revenues and expenses as follows:

I	II	III	IV
1982 Non Profit as reported in the Financial Statements.	1982 Non Profit adjusted to reflect 1983 price levels to make this com- parable with 1983.	1983 Non Profit as reported in the Financial Statements	1983 For Profit based on restating the 1983 NP Financial Statements.

The analysis proceeds in three parts as follows:

Part 1: NP vs. NP over two consecutive years

Actual 1982 and 1983 NP statements are compared to determine the extent to which one can accurately identify trends and changes in operating relationships and evaluate whether performance has improved using financial statement data and price level adjusted data. (This is a comparison of statement III with I and II).





**Part 2: FP vs. NP with identical output mix and in the same year**

1983 FP is compared with a 1983 NP with identical output mix and operating methods to estimate the impact of the legal status on operating costs. (A comparison of Statement IV and III.)

**Part 3: FP vs. NP with different output mix in same year**

1983 FP is compared with the NP for 1982 adjusted to reflect 1983 prices. This suggests the impact that a different output mix has on conclusions reached about relative performance of FPs and NPs and most closely reflect the type of analysis attempted in the studies described above. (A comparison of statement IV and II.)

**Part 1. 1982 vs. 1983 Operations of the NP Hospital - Before and After**

**Price Level Adjustments**

How does the financial performance of this NP in 1983 compare with 1982 based solely on the financial statement disclosures? Table 1 summarizes elements of the financial statements in Exhibit III that will be used for this analysis and provides added data that were needed to make this assessment.

Using only the income statement data in columns A and B of Table 1, the following conclusion might be reached:

- a. Total operating costs increased by 14.4% from \$109,920 to \$125,688. This magnitude of annual cost increases is the type that has generated concern about rising hospital costs.
- b. About 36% or \$5,729 of this cost increase of \$15,768 was due to added depreciation and financing costs associated with a major renovation of part of the hospital and for equipping that area.



Operating expenses before interest and depreciation (OEBID) actually increased about 9.5% from \$104,766 in 1982 to \$114,805 in 1983. It might appear that the operating margins have improved, since OEBID costs decreased as a percent of net patient revenues from 92.9% in 1982 to 90.0% in 1983. The financial statements provide no other help in determining whether this is due to higher fees, greater efficiency from management of operating costs, output mix or one-time aberrations.

- c. Gross revenues have grown by 12.2% from \$152,897 to \$171,602 while net patient revenues have increased by 13.8%. We have no information to determine the extent to which the revenue growth is due to increased volume, more expensive patient diagnoses, or higher fees. The higher growth in net patient revenues is apparently the result of less free care (unreimbursed care), and lower bad debt expenses. This is somewhat offset by greater contractual adjustments which are the discounts given to health insurers like Medicare, Medicaid and Blue Cross. These changes suggest a shift in the payor mix of cases at this hospital which may reflect a change in the case mix as well. For example, fewer Medicare cases could mean fewer geriatric types of illnesses are being treated.



TABLE 1  
Comparison of the Non-Profit Hospital - 1983 vs. 1982  
(Data excerpted from Appendix Exhibit III)

<u>Income Statement Data</u>	<u>A</u>		<u>B</u>		<u>C</u>	
	1982	(000's)	1983	(000's)	PLA 1982	(000's)
Gross Patient Revenues	135.6%	\$152,897	134.5%	\$171,602	135.6%	\$166,000
Less:						
Contractual adjustments	2.7	30,475	27.4	34,970	27.0	33,000
Unreimbursed care	3.5	4,029	3.0	3,860	3.5	4,000
Provision for uncollectable accounts	5.1	5,669	4.1	5,211	5.1	6,000
Net Patient Revenue	100.0%	112,723	100.0%	127,561	100.0%	122,000
Operating Expenses before depreciation and Interest	92.9	104,766	90.0	114,805	89.7	110,000
Depreciation	3.9	4,435	5.0	6,357	3.7	4,000
Interest Expense	0.6	719	3.5	4,526	0.6	700
Total operating expenses	97.5*	109,920	98.5	125,688	94.0	115,000
Income from Operations		\$ 2,803		\$ 1,873		\$ 7,000
 <u>Patient Day Data</u>						
Number of patient days of care		142,620		143,380		142,000
Number of patient days in 1983 adjusted for severity index compared to 1982 case mix.				146,047		
Cost of care per patient day						
Operating Expenses before interest and depreciation (OEBID)		\$ 735		\$ 801		\$ 780
Case mix adjusted for 1983				786		
Total cost per patient day including depreciation and interest.		771		877		
Case mix adjusted				861		
Income per patient day		19.65		13.06		5.00
Case mix adjusted				12.82		
Net Patient Revenue/Day		780		889		873

\*Difference due to rounding of percentages to one decimal.

\*\*Price level adjusted (PLA) to reflect specific price changes from 1982 to 1983. See Appendix for details.



- d. Income from operations has decreased by about \$930,000 and as a percent of net patient revenue primarily due to the cost increases noted above.

With the financial statement data alone, one can get an overview of the flow of transactions and estimate the cash flows, but there remains many unanswered questions noted above which make it difficult to assess the relative operating performance over these two years.

#### Price Level Adjusted Income Statement

One type of information that can help understand costs over time is the price level changes that impact the hospital. The 1982 statement restated to reflect 1983 price levels is included in column C of table 1. These data provide the following added insights:

- a. Price level adjusted OEBID are \$110,297 in 1982. Hence, 1983 operating expenses reflect a 4% increase over the price level adjusted 1982 level (versus the 9.5% before adjustment for price levels). This may be due to volume, case mix, or increases in the operating cost structure, e.g., inefficiencies or new technology. In comparison with revenue, the price level adjusted OEBID are 89.2% in 1982 versus 90% in 1983. This suggests that there were no improvements to operating efficiency as was suggested by the unadjusted 1982 statement, but rather suggests a decline in operating margins and profitability before considering the added depreciation and financing costs.
- b. Over 73% of the revenue growth was due to a 9% fee increase from 1982 to 1983. The balance of the increase in patient revenues may be due to volume or changes in the mix of cases, but this key issue cannot be resolved with the financial statement data.





While price level adjustments refine the assesment of performance, important aspects of this question still remain unanswered.

#### Case Mix and Volume Data

When comparing two years of hospital operations and comparing any two hospitals, the volume and mix of care provided will naturally differ as will the cost of providing the different mix and volume of care. To address the impact of volume and mix, the hospital provided two types of data not included in the financial statements:

1. Number of patient days of care which is a type of data commonly available for hospitals, but excluded from the financial statements.
2. Number of patient days of care provided for each Diagnosis Related Group (DRG). DRG's represent one of a number of ways of segregating patient care into case categories with relatively similar treatment requirements. Medicare DRG data are now being generated by hospitals for the first time because, beginning in 1983, the reimbursement for care to the elderly under Medicare based on a fixed fee for each DRG category rather than based on the cost of service rendered. While hospitals will in the future have internal data about how many Medicare patient days were treated in each of the approximately 400 DRG categories, they are not required to collect or provide this data for all patients and few hospitals have accurate records to do comparisons for two or more fiscal years at this time. (See [Hornbrook] and [Becker and Steinwald] for further information on DRG's and other output measures.)

The DRG data were used to adjust for case mix by applying the relative



cost estimated for each DRG based on the New Jersey DRG system to develop a cost index for this hospital for 1982 and 1983. (New Jersey has been using DRG's for several years on an experimental basis and currently has the most complete available data on reimbursement rates for each DRG category.)

Within any one hospital, the case mix will not tend to shift dramatically from year to year. For the hospital used in this study, the 1983 case mix was found to be about 1.8% more costly, reflecting a more severe case mix. While even this modest change was considered surprisingly large by hospital management, it appears to be meaningful in assessing operating performance. Note that the insights available from this data for more dissimilar hospitals will be more dramatic.

The information about patient care volume and case mix is included in the lower half of Table 1. Patient days increased from 142,620 in 1982 to 143,380 in 1983.

From financial statement data and the number of patient days, one would observe a \$106/day increase from \$771 in 1982 to \$877 in 1983. Of the \$106 increase, \$40 is due to added depreciation and interest and \$39 is due to price level changes. At this point, the conclusion that might be reached is that the net increase in OEBID costs is \$27/day. (\$106 increase less added depreciation and interest of \$40 and inflation of \$39.) However, the availability of a case mix measure that allows one to adjust the 1983 volume to make it comparable with 1982 case severity reflects a case mix adjusted patient volume of 146,047 days. Case mix accounts for \$16, of the \$27/day increase in operating cost, and the balance - \$11/ day - is likely to be the segment of pure operating cost increases. This last portion of the cost increase is most controlled by management and the basis for suggesting that operating costs have increased. (This breakdown is summarized in Table 2.)



**TABLE 2**  
**Reconciliation of Cost per Patient Day - 1983 vs. 1982**

		<u>%</u>
Total cost per patient day in 1982	\$771	100
Effect of price level changes from 1982 to 1983 on cost per patient day	<u>39</u>	5.1
<b>Total 1982 cost per patient reflecting 1983 price level</b>	<b>\$810</b>	<b>105.1</b>
Increase in cost due to added depreciation and interest costs associated with major renovation.	40	5.2
Increase in cost due to change in case mix i.e., more severe set of DRGs	16	2.1
Other causes of cost increases	<u>11</u>	<u>1.4</u>
<b>TOTAL COST PER PATIENT in 1983</b>	<b><u>\$877</u></b>	<b><u>113.1%</u></b>

The key point of this analysis is that using the financial statements alone, one could conclude that cost of care per day increased by about 14% with little ability to locate the source and nature of these increases. The availability of inflation data, output volume, and case mix data make it apparent that the cost increases are not indicative of a major decline in the operating efficiency, but that only \$11/day or about 1.4% of the increase over 1982 costs was an unexplainable increase that may be due to management inefficiencies.

The financial statement analysis problems encountered here is compounded by other problems in comparing FPs and NPs as will be illustrated in the following sections.

Part 2: FP vs. NP with identical output mix and in the same year.

The 1983 statement of the NP and restated as a FP are compared so there are no operating differences due to volume, case mix, location, quality of care, operating methods, and assets in use. Before proceeding, there are



some differences that would occur in FPs that are not completely reflected in the restated FP as follows:

1. The FP is assumed to have the same operating costs as the NP except that research expenses in the F/S are eliminated and the restricted gift and endowment income are also eliminated. Some of the operating expenses that remain in the FP may be indirect costs of the research activity and consequently operating expenses of the FP may be overstated. Offsetting this to an undeterminable extent are certain operating costs in the NP for programs funded with restricted funds that might be eliminated if restricted funding were to become unavailable.
2. The risk profile of the FP and NP differ and would impact the borrowing rate. While an attempt to adjust for borrowing costs is reflected in the higher interest attributed to the FP, this is not a precisely determined risk adjustment. A differential of 3% (see Appendix - Exhibit III) between tax free and corporate bond interest was used but this differential could be much greater, and for some hospitals at certain times, may also be lower.

What conclusions might be revealed by comparing this FP and NP for the same year of operation? The data from Exhibit III that are used for this analysis are included in Table 3. OEBID of the FP are higher although by less than 2%, i.e., \$114,805 in the FP vs. \$115,010 in the NP. This difference primarily reflects the FPs' need to replace donated services and pay property tax expenses. Even with the addition of the higher FP interest cost, FP costs are \$127,250 which is only about 1.2% above the NP costs of \$128,688. This is also manifest by a NP cost per day of \$882 versus \$886





for the FP. The revenues of the FP are higher due to the Medicare return on investment reimbursement supplement and not due to case mix or a higher fee schedule in the FP.

TABLE 3

Comparison of the NP Restated as a FP for 1983

(Data excerpted from Appendix - Exhibit III)

	NP 1983 (000's)		FP 1983 BASED ON NP 1983 (000's)	
Gross Patient Service Revenue	\$171,602	134.5	\$173,149	134.1
Deductions	<u>44,041</u>		<u>44,041</u>	
Net Patient Revenue	127,561	100.0	129,108	100.0
Operating Expenses before Depreciation and Interest (OEBID)	114,805	90.0	115,010	89.1
Depreciation	6,357	5.0	6,357	4.9
Interest	<u>4,526</u>	3.5	<u>5,883</u>	4.6
Total Operating and Financing Expenses	<u>125,688</u>	98.5	<u>127,250</u>	98.6
Operating Income Before Tax	1,873	1.5	1,858	1.4
Income tax expense	N/A		854	
Investment Tax credit			<u>(500)</u>	
After Tax Operating Income	<u>\$ 1,873</u>	1.5	<u>\$ 1,504</u>	1.2

Patient Day Data

OEBID per day	\$ 801	\$ 802
Total Operating and Financing Expenses per day	877	877
Net Patient Revenue per day	\$ 889	\$ 900

Nevertheless, the FP may appear to be more profitable and/or efficiently managed to the extent that it has lower operating costs as a percent of net patient revenues (89.1% for the FP vs. 90.0% for the NP). The higher FP operating margins are offset by higher interest costs resulting in lower



pretax operating income (1.4% of net revenues) than the FP (1.5% of the net revenues). The FP also appears to charge more for services (\$900/day) than the NP (\$889/day) even though it nets about 80% of the NP's after tax income from operation.

In this simple example, any conclusions about greater or lower efficiency and fee schedules are completely beyond the control of management and are largely artificial even though the ratios suggest such differences. While the operating expense differences arising from legal status may be considered immaterial in this instance, in other situations this may well be substantial. The interest rate differential and income taxes are potentially significant and clearly warrant more attention.

Considering the evidence that FPs have performed well from an investor perspective, the NPs tax and interest advantages should make them even stronger performers on financial dimensions, other things being equal, based on the illustration in table 3. In addition, studies that have found NPs to have higher costs and lower fees are likely to understate the magnitude of these performance gaps if the accounting data are not explicitly adjusted for the revenue and expense differences due to legal statutes noted above.

### Part 3: FP vs. NP with Different Case Mix and Volume

The 1983 FP is now compared with the 1982 NP adjusted to 1983 prices to provide a comparison of two hospitals operating in the same year with different (albeit modestly different) output mix. Any conclusions revealed will tend to understate the types of analytic problems that could occur because it is unlikely that any two hospitals would have case mix, volume, and payor mix that are so similar. The data used are included in Table 4.



TABLE 4

## Comparison of a FP and NP with Different Case Mix and Volume

(Data excerpted from Appendix - Exhibit III)

	NP 1983(1) (000's)		FP 1983(2) (000's)	
Gross Patient Revenue	\$166,636	135.6%	\$173,146	134.1%
Deductions				
Contractual Adjustments	33,218		34,970	
Unreimbursed Care	4,391		3,860	
Provision for Uncollectible Accts	6,179		5,211	
	<u>43,718</u>		<u>44,041</u>	
Net Patient Revenue	122,918	100.0	129,108	100.0
Operating Expenses before Interest and Depreciation (OEBID)	110,297	89.7	115,010	89.1
Depreciation	4,425	3.6	6,357	4.1
Interest	744	0.6	5,883	4.6
Total Operating Expenses	<u>115,466</u>	93.9	<u>127,250</u>	98.6
Income from operations before tax	7,452	6.1	1,858	1.4
Income tax expense	N/A		854	
Income tax credit	N/A		<u>(500)</u>	
Income after Tax from Operations	<u>\$ 7,377</u>	6.0	<u>\$ 1,504</u>	1.2
<u>Patient Day Data</u>				
OEBID per Patient Day (Unadjusted)	\$ 773		\$ 802	
(Adjusted)			787	
Total Operating and Financing Expenses per patient day (unadjusted)	810		887	
(Case mix adjusted)			871	
Net Revenue per patient day (Unadjusted)	859		900	
(Adjusted)			884	
Income after tax per patient day (unadjusted)	\$ 52.03		10.49	
(case mix adjusted)			\$ 10.30	

(1) Based on Price Level Adjusted 1982 NP statement.

(2) Based on Conversion of 1982 NP statement to FP status.



Quality difference would be minimal since there are no major changes in management or operation over these two years. OEBID compared with net revenue may initially appear to be slightly lower for the FP based on financial statement data alone, i.e., FP experiences OEBID equal to 89.1% of net patient revenues vs. 89.7% for the NP.

Such a conclusion would overlook the volume difference which indicates the FP OEBID is \$802/day which is 3.7% above the NP OEBID of \$773/day. Here again, the conclusion is incomplete, as the availability of case mix data indicates that the FP had a more severe case mix so that it's adjusted cost/day is \$787 or only 1.8% above the NP. Note that only a small difference in case mix costliness (1.8%) results in overestimating the percent of operating cost per day difference by a factor of 2. Most of the studies cited in the literature review may be subject to this type of error. The differences in the FP and NP total cost/day are reconciled in Table 5.

**TABLE 5**  
**Reconciliation of the FP and NP Cost Per Day**

(Based on data from table 4)

FP cost/day	\$887	100
Adjustment to reflect more severe case mix	<u>(16)</u>	<u>1.8</u>
Case mix adjusted cost/day	\$871	98.2
Added operating expenses due to FP status	(1)	0.1
Added interest costs due to FP status	(9)	1.0
Added depreciation and interest associated with renovation	(38)	4.3
Unexplained excess of FP over NP costs	<u>(13)</u>	<u>1.5</u>
<b>NP Cost/Day</b>	<b><u>\$810</u></b>	<b>91.3</b>





Only \$13/day or 1.5% of the cost per day is unexplained and potentially due to less efficient management in the FP. Without the benefit of the case mix and volume data and the ability to segregate known differences in FP operating costs due to their legal status, one could have suspected the FP of operating at much higher operating cost levels and concluding that much of this is potentially due to poor management.

Similarly, the unadjusted revenue per patient day might suggest that the FPs is paid \$41 more per patient day (\$900 for NPs vs. \$859 for NPs). Case mix adjustment indicates FP fees received are only \$19 higher and the balance of the difference (\$16) is due to a more severe, costly case mix. About \$10.60 of the higher FP fees per day is due to special Medicare payments to FPs and the balance of this differences is due to change in payor mix and other unidentified factors.

The directions of the conclusion in this comparison are not indicative of all FPs and NPs. Other factors may tend cause many of the conclusions to go in other directions. For example, FPs are believed to have less severe case mix and more favorable payor mix resulting in lower cost patients who pay a higher percentage of the gross revenues, i.e., contractual adjustments will tend to be smaller. (For example, the Hospital Corporation of America's annual report for 1982 reflects contractual adjustments and provision for doubtful accounts of less than 16% of gross revenue compared with 25% for the NP in this study.) The FP salaries and fringes have been found to be higher in some studies while more business-like management practices in FPs may to lead to cost savings. Nevertheless, throughout this analysis, the conclusions that might be derived from financial statement disclosures alone are found to be incomplete and/or inaccurate. The need to understand the nature of rising hospital costs and the impact of FPs on the industry to develop legislation and corporate policies to contain health



care costs raises questions about whether and how the financial statements can become a more useful tool to address these issues.

#### IV. Expanded Financial Statement Disclosures Needed to Compare Hospital Performance .

The comparative analysis completed in the prior section along with the prior studies of FPs vs. NPs suggests that the following disclosures and supplements to the financial statements are needed to make them more relevant and meaningful for addressing hospital cost control.

1. Output Mix Data: Output volume, case mix data and payor mix data should be provided in a form that will allow users to adjust revenue and expense data for volume and case mix. Standardized volume and case mix disclosures are needed to understand relative hospital costs. A table of patient days and/or patients treated in each DRG category and the weighted cost level using the dollar weights used in this study or other acceptable weights that are considered to accurately reflect relative costliness of each DRG should be adopted. The table should also enable one to apply other sets of weights as required. While DRGs have many well-documented flaws, they are likely to be the most widely available case mix measure and would be the most expedient choice until they are replaced by more sensitive measures of case mix.
2. Price Level Data: Price level adjusted financial statement disclosure following along the lines of SFAS 33 are needed to distinguish trends in operating costs which differ from the underlying impact of inflation. Specific price level adjustments



would be preferable to a general CPI, since in the example, the specific price level by cost type differed substantially. In addition, current cost data would provide a good basis to adjust depreciation costs, an adjustment that was not possible but which was acknowledged in this study.

3. Disclosures of the Impact of Interest Rates, Research, Teaching, Fund Accounting, and Donated Services on NP Operations: The problems with comparing FP and NP hospitals were not primarily due to the existence of fund accounting for NPs. The key unknown issue is the extent to which the donated funds and services result in operating costs that would or would not be incurred if these donations were absent. Management of NPs should be asked to estimate the impact of these donations on operating costs as well as the impact of other programs such as research and teaching. Similarly, the difference in tax free vs. corporate debt rates and waived property tax should be estimated and disclosed to provide a basis for estimating the interest cost subsidy provided to NPs.
4. Line of Business Disclosure: - Hospital revenues and operating costs are currently reported as one line of business. In actuality, there are multiple activities encompassed in this one business. Notably, there is inpatient vs. outpatient care which is not segregated. Corporate segment reporting could be extended to hospitals to require them to report the relevant segments. This should at least segregate outpatient, teaching, and research activities. The volume and case mix for each line of business should also be provided for reasons discussed in (1)



above. Such disclosure would in actuality be much more detailed than corporate line of business data because the latter tends to incorporate a wider group of activities, products and or services in each segment category than is proposed here for hospitals.

5. Management discussion and analysis - The SEC corporate reporting standards require the management discussion and analysis to help readers segregate price increases from volume changes, understand changes in operating cost levels, understand impact of inflation and assess the organization's short- and long-term liquidity pressures. Similar disclosures are needed for hospitals to make a comparison more meaningful.
6. Government owned hospital reporting - The above should explicitly include government non-profit hospitals, as this represents an area that could be overlooked in the separation of accounting standard between under the Government Accounting Standards Board and the Financial Accounting Standards Board.

The type of disclosures that are suggested above are largely extensions of reporting standards now required of most large corporations. The one notable exception is disclosure of outpatient volume and mix data. Added disclosures of this nature raises questions of fairness and cost vs. benefit of the disclosure. Fairness to the accountant (i.e., the hospital) has been argued by Ijiri [1982] to be a key concern because the disclosure may damage the accountant vis-a-vis its competitors. The hospital industry is less vulnerable to this type of damage because of the nature of competition in this industry. Hospitals compete to attract physicians as a means of attracting patients. While this has historically meant that there is





essentially no price competition, the pressure to reduce health care costs has increased the price competition. More complete cost and volume disclosure may result in a net loss of patients and revenues for some hospitals. The issue is whether the public benefit will exceed this cost.

The need for output disclosure is already acknowledged in the accounting literature for non-profit organizations as reflected in the following excerpt from the Financial Accounting Standards Board's STATEMENT OF FINANCIAL ACCOUNTING CONCEPTS #4-OBJECTIVES OF FINANCIAL REPORTING BY NON-BUSINESS ORGANIZATION (1981).

"Information about an organization service efforts and accomplishments is useful to resource providers and others in assessing the performance of a nonbusiness organization and in making resource allocation decisions particularly because:  
...accomplishments ... generally cannot be measured in terms of sales, profits, or ROI, ... (Paragraph 51)

Financial reporting should provide information about the service efforts of a nonbusiness organization....[i.e.] how the organization resources are used in providing different programs or services. (Paragraph 52)

"Ideally, financial reporting also should provide information about the service accomplishments ... in terms of goods or services produced (outputs) and of program results ... (Paragraph 53)"

In the case of hospitals, the volume and mix of outputs are so basic to the operation that excluding these data severely constrict the usefulness of the financial statements in answering questions about relative costs and performance. There are two opposing views about how hospitals should evolve. One view argues that NPs should lose their government subsidies and allow lower cost, more efficient FPs to take over. The other side argues that that NPs really provide services that treat a different mix of patients than FPs and that they are really a different set of institutions that meet a distinct need in our society which justifies this subsidy. At the operating level, a better understanding about whether there are efficiencies in FPs that NPs can learn and benefit from or vice versa can lead to



improved cost control for all hospitals. Currently the financial statements provide no help or potentially misleading conclusions about these issues. The role of the accounting disciplines has historically been one of follower rather than leader in making breakthroughs on issues of health care cost management. Expanded financial statement disclosures suggested in this study would help resolve many of the ambiguities about relative performance of hospitals and move accounting into a leadership role in dealing with the management of health care costs. Finally, this study suggests that there is an important role to be played by the accountant in the dialogue among economists, hospital administrators, health care regulators, and legislators in understanding the cause of and seeking solutions to contain rising health care costs.



#### FOOTNOTES

- 1 One earlier study [Ruchlin et al.] did find NPs have lower quality based on death rates, unadjusted for case mix. This was refuted in a later study [Bays, 1977] that did adjust for case mix.
- 2 Cost per day and cost per admission are both used as performance measures because FPs have generally had lower lengths of stay which can result in lower cost per patient even if their cost per day is higher.
- 3 In addition to the original articles, a more detailed summary of these studies can be found in [Sherman and Chilingirian (1984)].



STUDY*	SAMPLE CHARACTERISTICS	PERFORMANCE DIMENSION				OPERATING EFFICIENCY
		QUALITY OF CARE	COST PER DAY	COST PER ADMISSION	FEES CHARGED FOR SERVICES	
Steinvoild & Newhauser		NP = NP (Accreditation)				
Ruchlin		FP > NP.				
Boya	19 FPs and 22 NPs in California. FP case mix & NP case mix.	FP = NP. Mortality rates <u>adjusted for case mix.</u>		FP = NP. FP chains < Ind. FPs & NPs		
Clark		FP = NP. Malpractice claims, high prestige technology, suspect practices.	NP < FP	FP < NP		
Berry			NP < FP			
Levin, Derzon & Margules	52 matched pairs (104 hospitals) in California, Texas, and Florida.		NP < FP	NP < FP FP < FP (in Florida)	NP (Fees) < FP NP (Mark-Up) < FP	FP (Capital and personnel utilization) > NP
Sloan and Vraciu	112 hospitals in Florida FP Case mix = NP case mix.		NP = FP. FP chains < NP and FP inds.	FP chains < NP. NP = FP	NP = FP (per admission). FP chains < NP & FP Ind. (per admission)	
Coyne	177 hospitals - distinguished between chain and non-chain and private NP vs. public NP			FP and NP Ind. < FP chains. County owned NP chains < FP and NP Ind.		FP = NP
Pattison & Kats	280 hospitals in California.		NP < FP	NP < FP	NP < FP	
Kushman & Nuckton						FP (Responsive-ness of bed stock to demand.) > NP
Wilson & Jadow	922 hospitals - Nuclear medicine.					FP (Nuclear medicine) > NP
Sherman & Chillingarian	733 hospitals					FP (Shared services, competitive bidding, pre-admit testing, demand forecasting-ing.) > NP

\*Listed in order in which they are discussed in the paper.

\*Listed in order in which they are discussed in the paper.





## **EXHIBIT II**

### **NP vs. FP HOSPITALS Financial and Operating Differences**

- o FPs have access to equity capital not available to NPs. This also allows FPs to offer employees remuneration in the form of stock options, and stock purchase plans that do not drain cash from the organization. This potentially would allow FPs to attract more professional managers that are capable of running more efficient and profitable hospitals.
- o FPs are corporations with shareholders that expect the Board to manage the organization to yield growing profits and cash flows.
- o NPs are generally operated to maximize service while maintaining solvency, rather than to generate profits that can be distributed to shareholders.
- o NPs are exempt from property and income taxes, resulting in lower operating expenditures.
- o NPs can receive tax deductible donations which is a source of capital not available to FPs. Such donations can replace the need to finance equipment purchases with debt and has no requirement that it be repaid or provide a return to the donor. (These revenues are restricted funds and are consequently segregated from operating funds in the financial statements.)
- o NPs can attract donated services which may replace the need for expenditures on these services. FPs generally do not receive such donated services or receive them in significantly lower volume.
- o NPs can issue tax exempt debt resulting in lower interest costs than FPs.
- o The mix of patient care (case mix) and the mix of payors may differ among FP and NP hospitals. The output mix is a basic issue in comparing costs of any businesses. This has been a key concern in hospitals due to the allegation that FPs seek a select mix of patients and payors to maximize profits. Case mix "cream skimming" implies attracting a mix of illnesses that are particularly profitable due to the cost advantage. This is distinguished from payor mix "cream skimming" where hospitals may attempt to attract patients who will pay the full rates charged by the hospital. Certain payors, such as Medicare, Medicaid, and frequently Blue Cross, pay less than full rates based on contractual agreements while private patients and other private insurers generally pay the full rates billed by a hospital. Hence, the payor mix and the patient mix may differ among FP and NP hospitals. Case mix impacts the cost of care while case mix and payor mix impact the revenue generated from services provided.



# **EXHIBIT III** **STATEMENT OF REVENUES AND EXPENSES**

(I)	(II)	(III)	(IV)
NP 1982 (000's)	PRICE LEVEL ADJUSTMENT FACTOR	PLA-NP 1983-82 (000's)	NON PROFIT (NP) TO FOR PROFIT (FP) ADJUSTMENTS FP 1983 (000's)
Patient Services Revenues		NP 1983 (000's)	
Room and Care	\$45,364	\$49,447	\$52,017
Clinics	18,722	20,407	19,695
Special Services	88,433	96,391	99,614
Supplementary Income	378	391	276
Gross Patient Service Revenues	<u>152,897</u>	<u>166,636</u>	<u>171,602</u>
			1,547(a)
			<u>173,149</u>
Deductions from Patient Services Revenues			
Contractual Adjustments	30,476	33,218	34,970
Unreimbursed Care	4,028	4,391	3,860
Provision for Uncollectible Accounts	<u>5,669</u>	<u>6,179</u>	<u>5,211</u>
40,174	<u>43,718</u>	<u>44,041</u>	<u>44,041</u>
Net Patient Services Revenue	<u>112,723</u>	<u>122,918</u>	<u>127,561</u>
			<u>129,108</u>
Operating Expenses Excluding Research			
Salaries and Wages	50,638	53,676	57,526
Fringe Benefits	7,925	8,400	8,638
Services of Physician Groups	16,101	17,066	17,809
Supplies and Expenses	30,102	31,155	30,832
Operating Expenses Before Depreciation	<u>104,766</u>	<u>110,297</u>	<u>114,805</u>
Depreciation Expense	4,435	4,425	6,357
Operating Expenses Excluding Research	<u>109,201</u>	<u>114,722</u>	<u>121,162</u>
			1,357(e)
Interest Expenses	719	744	4,526
Income before other Revenues and Expenses	<u>2,803</u>	<u>7,452</u>	<u>1,873</u>
			<u>5,883</u>
			<u>1,858</u>
Other Revenues and (Expenses)			
Transfer of revenues for research and specific purposes	8,423	8,718	8,780
Research Expenses	(9,065)	(9,382)	(9,510)
Realized and Unrealized Gains (Losses) on Investments	279	289	965
Net Investment Income	2,695	2,789	2,051
Unrestricted Gifts and Grants	126	131	122
Other	(59)	(61)	(433)
Income Tax (State and Federal)			(122)(f)
Net other Revenues and Expenses	<u>2,399</u>	<u>2,483</u>	<u>1,975</u>
NET INCOME	<u>\$ 5,203</u>	<u>\$ 9,495</u>	<u>\$ 3,848</u>
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			(1,561)(g)
			2,051
			--
			--
			965
			--
			--



### FOOTNOTES TO EXHIBIT III

Adjustments for specific price level effects based on hospital management's assessment of each revenue and expense items change from 1982 to 1983.

- (1) based on actual fee increase from 1982 to 1983.
- (2) Consumer Price Index from Statistical Abstract of U.S., U.S. Department of Commerce, 1984.
- (3) Salary inflation rate experienced by hospital.
- (4) The construction cost increases from 1982 to 1983 were estimated by management to be 5%. The hospital uses straight-line depreciation and there were no major equipment disposals during 1982 and essentially all assets had the same depreciation charge in 1982 and 1983 except for the renovation that accounted for substantially all of the \$1,922,000 increase in 1983 depreciation. No adjustment was needed to price level adjust the 1982 depreciation, since the asset base is identical to 1983 except for the renovation. The depreciation expense in 1983 would have been lower if the renovation had been completed in 1982. Hence, there remains an overstatement of the true increase in depreciation between 1982 and 1983. Similarly, the 1983 financing costs would have been lower had the renovation been completed in 1982 due to lower construction costs which would have been further affected by the interest rates in effect in 1982.

For purposes of this analysis, it is sufficient to know that 1983 operations reflect use of the same assets as 1982, except for the major renovation. In other hospital comparisons, detailed price level adjusted capital costs will be needed to clarify differences in the asset base used by hospitals.

- (a) Medicare provides a 9% return on investment allowance to FPs which is not provided to NPs to recognize the FPs objective of earning an adequate return on shareholder equity. The adjustment that would result was estimated as follows:

Net Hospital Investment (Assets - Liabilities)	\$61,400,000
Return on Investment Allowance	9%
	<u>\$ 5,526,000</u>
Percent of all patient care days related to Medicare patients	<u>28%</u>
	<u>\$ 1,547,000</u>

- (b) NP estimated that it had about 10 full-time equivalents of personnel valued at \$10,000 per year of donated services that would otherwise have to be purchased. Total donated services substantially exceed this amount.



- (c) Fringe benefits related to donated services (item b).
- (d) Estimated property tax that would be assessed on hospital buildings if it were a FP is \$90,000.
- (e) The differential between the NP tax exempt interest rate and the FP corporate borrowing rate is assumed to be 300 basis points and the NP's interest rates which range from 8 1/2% to 10% were assumed to be 10% in calculating the corresponding FP debt rate. Hence the FP debt interest was calculated to be  $[(10\% + 3\%) \div 10\%] \times [\text{NP interest expense}]$ . The actual spread between tax exempt and taxable debt interest rates can vary based on the level of interest rates, the percentage of debt financing, other hospital specific risk factors, and the income tax rates and laws. While the spread of 3% assumed here is reasonable (see for example Slater, Karen, "Municipal Bond Investors Should be Aware of Possible Effects of Flat Tax Proposals," WSJ, November 19, 1984, page 35], the actual spread may be much higher or lower.
- (f) In a FP, there would be no restricted and unrestricted gift income to be transferred in to cover research and operating costs. Similarly, there has generally been no research activities at FPs, although this type of activity can be conducted at FPs. No adjustment has been made to estimate any changes in operating expenses that would result if the restricted funds for special purposes were absent. No adjustment was made to reflect any administration overhead costs that might be reduced if the research activities were eliminated.
- (g) Income taxes were estimated as follows:

		<u>INCOME TAX EXPENSE</u>
Income before tax excluding capital gains on sale of investments (\$3,529 - \$965).	\$3,476	
State Tax at 8%	<u>278</u>	\$ 278
Income before Federal after State Tax	<u>3,198</u>	
Federal Tax (46%)		1,471
Capital Gains on Sale of Investments	965	
Federal Capital Gains tax assuming all gains are long-term (28%)		270
State Tax on Capital Gains net of Federal tax saved from added state tax deduction (77.1 - 35.0)		<u>42</u>
Income Taxes before Investment Tax Credit		2,061
Investment tax credit (10% of \$5 million equipment additions)		<u>(500)</u>
Income Tax Expense		<u>\$1,561</u>





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